

CLAIMS

1. Rotational shearing filter having a housing (1) and a plurality of spaced-apart, coaxial, annular, hollow filter disks (2) arranged therein, whereby held rotationally fast on a rotatable central drive shaft (5) that penetrates said filter disks are a plurality of shearing elements (6) that are adjacent to the annular surfaces of said filter disks in the axial direction of said housing (1) for maintaining their filter permeability for filtrate that penetrates out of said housing (1) into said filter disks (2),

characterized in that

said shearing elements (6) that are joined to said drive shaft (5) so as to rotate therewith are guided thereon in an axially displaceable manner

and in that allocated to said shearing elements (6) are spacers (7, 8) that axially displace said shearing elements (6) corresponding to longitudinal changes in said housing (1) caused by thermal conditions.

2. Rotational shearing filter in accordance with claim 1, characterized in that said spacers (7, 8) arranged between said filter disks (6) are annular and enclose said drive shaft (5).

3. Rotational shearing filter in accordance with claim 1 or 2, characterized in that annular spacers (7) enclose said drive shaft (5) with slight play, are arranged directly between each two adjacent shearing elements (6), and comprise a material, the heat expansion of which largely matches that of said housing (1).

4. Rotational shearing filter in accordance with claim 3, characterized in that at least one pre-tension spring (9) enclosing said drive shaft (5) is present that presses one of the two shearing elements (6) arranged on the end-side in the direction of the other shearing elements (6).

5. Rotational shearing filter in accordance with claim 4, characterized in that two pre-tension springs (9) enclosing said drive shaft (5) are present that press both end-side shearing elements (6) in the direction of the other shearing elements (6).

6. Rotational shearing filter in accordance with claim 4, characterized in that one of the two end-side shearing elements (6) is positioned against a stop of said drive shaft (5).

7. Rotational shearing filter in accordance with claim 1 or 2, characterized in that annular spacers (8) are embodied as sliding bushes and enclose said drive shaft

(5) with a good deal of play, in that up to the end-side spacers (8) all of said center spacers (8) are arranged between a filter disk (2) and a shearing element (6), and in that said two end-side spacers (8) are arranged between said end-side shearing elements (6) and said housing (1).

8. Rotational shearing filter in accordance with claim 7, characterized in that the center spacers (8) are attached to said filter disks (2) and the two end-side spacers (8) are attached to said housing (1).

9. Rotational shearing filter in accordance with any of claims 1 through 8, characterized in that said drive shaft (5) has at least one longitudinal groove or rib running in the axial direction in which said shearing elements (6) engage rotation-fast with a corresponding profile.

10. Rotational shearing filter in accordance with any of claims 1 through 9, characterized in that said housing (1) and said drive shaft (5) comprises materials with clearly different coefficients of expansion.

11. Rotational shearing filter in accordance with claim 10, characterized in that said housing (1) comprises plastic and said drive shaft (5) comprises metal.

12. Rotational shearing filter in accordance with any of claims 1 through 11, characterized in that said spacers are embodied as interior projections or receiving depressions of said housing (1) that extend with said shearing elements (6) into a sliding catch that displaces them axially.